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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/789,773

02/27/2004

Gerald S. Maloney

A-67520-5/RMA(469113-47)

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08/06/2004

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EXAMINER

ELEY, TIMOTHY V

ART UNIT

PAPER NUMBER

3724

DATE MAILED: 08/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/789,773

Applicant(s)

MALONEY ET AL.

Examiner

Timothy V Eley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-19 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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DETAILED ACTION

1. Applicant should note the disposition of U.S. Application Serial No. 10/021,372 in the specification.

Specification

2. The abstract of the disclosure is objected to because of the following informalities:

- a. "an"(line 16) should be --and--.
- b. "polishing"(line 17) is misspelled.
- c. "(a) method . . . provided"(lines 17 and 18) is awkwardly worded.

Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claims 1-5,13, and 14 are objected to because "a"(claim 1, line 10, third occurrence) should be --the--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 6-13, and 15-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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a. The following phrases in the claims lack proper antecedent basis since they were not properly earlier referred to:

- i. "the portions"(claim 6, line 13; claim 18, line 2).
- ii. "the parallel portion"(claim 6, line 14; claim 18, line 3)).
- iii. "the other portion"(claim 6, line 15; claim 18, line 4).
- iv. "the . . . surface"(claim 6, line 16; claim 18, line 5).

b. The following phrases in the claims are vague, indefinite, and/or awkwardly and confusingly worded and are therefore not fully understood:

- i. "the pad . . . force"(claim 13, lines 1-5; claim 15, lines 1-5).
- ii. "and to . . . flat"(claim 13, lines 6 and 7; claim 15, lines 6 and 7; claim 17, lines 18 and 19).
- iii. "applying . . . force"(claim 17, lines 14-17).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the

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invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, and 3-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Mack(5,941,758).

a. Mack discloses a method of planarizing a semiconductor wafer, using a retaining ring having a chamfered outer edge including a transition region between a first surface substantially parallel to the pad and a fourth surface substantially perpendicular to said pad, said transition region presenting a second surface at a first angle relative to the first surface and a third surface at a second angle relative to said fourth surface. See figure 1. The perpendicular surface is the top perpendicular surface on the retaining ring(114). The lower perpendicular surface is part of the transition region, but is considered to be a fifth surface. The second surface is immediately adjacent to the parallel surface and at an angle thereto. The third surface is directly above the lower perpendicular surface(fifth surface) and immediately adjacent to the top perpendicular surface and at an angle thereto.

8. Claims 1, and 3-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Henderson(5,679,065).

b. Mack discloses a method of planarizing a semiconductor wafer, using a retaining ring having a chamfered outer edge including a

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transition region between a first surface substantially parallel to the pad and a fourth surface substantially perpendicular to said pad, said transition region presenting a second surface at a first angle relative to the first surface and a third surface at a second angle relative to said fourth surface. See figures 5 and 6. The parallel surface is the first parallel surface to the extreme right of figure 6. The perpendicular surface is the third perpendicular surface from the right of figure 6. The second surface is the second perpendicular surface from the right of figure 6. The third surface is the second parallel surface from the right of figure 6.

9. Claims 9 and 19 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over either Mack or Henderson.

a. Mack and Henderson are explained above.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henderson in view of Drill et al(6,139428).

a. Henderson is explained above.

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- b. Henderson does not disclose applying a pad conditioning force to the retaining ring which is independent of a polishing force.
- c. Drill et al discloses that it is well known in the art to apply a pad conditioning force independently of a polishing force in order to allow for better control of a polishing operation.
- d. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Henderson by applying a pad conditioning force to the retaining ring which is independent of a polishing force as taught by Drill et al in order to allow for better control of planarizing of the semiconductor wafer.

Allowable Subject Matter

12. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. Claims 13,15, and 16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

14. Claims 6-8,10-12,17, and 18 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Conclusion

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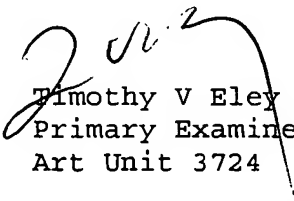
15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. The cited prior art discloses methods of polishing using retaining rings.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy V Eley whose telephone number is 703-308-1824. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan N Shoap can be reached on 703-308-1082. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Timothy V Eley
Primary Examiner
Art Unit 3724

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